



News Release (June 28, 2024)

TOYO GLASS's proposed glass melting furnace with an on-site hydrogen supply facility has been selected as a NEDO project.

TOYO GLASS CO., LTD. ("Toyo Glass"), a consolidated subsidiary of Toyo Seikan Group Holdings, Ltd., has been selected to participate in the 2024 *Regional Hydrogen Utilization Technology Development* section of the New Energy and Industrial Technology Development Organization's (NEDO) *Development of Technologies for Realizing a Hydrogen Society* project, with its proposal for the development of a glass melting furnace equipped with an on-site hydrogen supply facility. This is Toyo Glass's second NEDO project related to hydrogen utilization, following its *Research and Development of the Utilization of an Oxygen-Hydrogen Combustion Flame as the Heat Source for Soda-Lime Glass Melting* proposal, which was selected in June 2023 as "Technology Development Project for the Construction of a Competitive Hydrogen Supply Chain/ Comprehensive Survey and Research/ Survey and Research on the Application of Oxygen and Hydrogen Combustion Technology to Heat Demand".

Glass melting furnaces typically rely on large amounts of fossil fuels, but achieving a decarbonized society will ultimately require a transition to non-fossil fuels, such as hydrogen. To facilitate a transition to using hydrogen as a fuel, it is first necessary to establish a hydrogen supply system. Toyo Glass therefore seeks to contribute to the utilization of hydrogen energy in the region by creating an on-site hydrogen supply facility.

If the glass melting furnaces owned by Toyo Glass were converted to hydrogen, over 6,000 large hydrogen trailers would be needed annually for each furnace. However, obtaining such a large amount of hydrogen from external sources would pose challenges, such as constructing multiple large storage tanks on factory premises and the consequent requirements for stringent safety management of high-pressure and liquefied hydrogen.

Water electrolysis involves passing an electric current through water (H₂O) to separate it into oxygen (O₂) and hydrogen (H₂). Constructing an on-site hydrogen supply facility that uses electrolysis would make it possible to produce hydrogen according to demand using existing water and electricity sources, eliminating the need for large storage facilities. Additionally, as a glass melting furnace requires only the pressure necessary for combustion, there is no need to compress or liquefy hydrogen, making it easier to introduce. Furthermore, if the electricity needed for electrolysis is supplied from local renewable energy generation facilities, this could lead to the development of a regionally self-sufficient hydrogen energy utilization system.

In this project, a bench-scale model of the facility will be created, and technology will be developed

toward its future implementation in glass melting furnaces. As a leading company in the glass bottle industry, Toyo Glass is committed to creating glass melting furnaces that utilize hydrogen energy and thus have minimal environmental impact while continuing to manufacture high-quality glass bottles that meet customers' expectations.

About Toyo Seikan Group Holdings, Ltd.

Toyo Seikan Group Holdings, Ltd. is a world-class comprehensive packaging manufacturer, delivering a variety of packaging containers using materials such as metal, plastic, paper, and glass. In our Long-Term Management Vision 2050, "The Future, Wrapped for All," we set a goal to go beyond our traditional field of packaging, aiming to become a corporate group that creates new value that changes society. Founded in 1917, Toyo Seikan Group Holdings, Ltd. conducts business on a global scale, with 44 group companies in Japan and 48 overseas, and currently employs a multinational workforce of 20,000 people. For more information, please visit <https://www.tskg-hd.com/en>.

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